

**Praying for Progress: Religion and Innovation**

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## Abstract:

In this paper, I look at the relationship between an individual's religiosity and their attitudes towards sciences, technology, and ultimately innovation, then across different religions to assess if there are attitudinal differences across religions. With a growing body of work on the importance of innovation for economic growth, this paper aims to interrogate how attitudes towards innovation changes as the world's adherence to religious belief grows. I find that religion tends to have a negative relationship with attitudes towards innovation and there are differences across different religions in attitudes towards innovation. While many of the findings are statistically significant, I find that they are not economically significant.

# Introduction

In today's world, the transition of economies into an innovative phase of development is vital for economic growth. For this reason, many countries develop innovation systems, increasing spending on human capital and increasing public and private investment in research and development. However, little consideration is paid to the examination of religion's impact on building these innovation systems.

The debate on the relationship between religion and innovation is as old as time. It dates back to the Enlightenment period, where there was a push towards secularization and the separation of church and state. This separation led to a decline in the influence of religion on society and allowed for the rise of science and rationality. However, religion continued to play a role in shaping attitudes towards innovation, as evidenced by the resistance to evolutionary theory by some religious groups in the 19th and early 20th centuries.

In the 20th century, some scholars argued that certain religious traditions were more compatible with innovation and economic growth than others. For example, Max Weber argued that the Protestant work ethic was a key factor in the rise of capitalism and the industrial revolution (Weber, 1974). Other scholars, such as David Landes, have pointed to the role of Jewish and Calvinist traditions in fostering entrepreneurship and innovation.

It is not surprising that religion and innovation have a tense relationship. After all, innovation, at least in the modern age, is more and more mediated by science. Religion is often perceived as being static and resistant to innovation. Nonetheless, it is important to acknowledge that religion was not inherently opposed to scientific inquiry. In fact, colleges and universities, institutions born out of pushing forward the realms of knowledge, emerged out of religion.

Despite the historical and cultural factors that have shaped attitudes towards innovation within different religious traditions, there is still little consideration paid to the examination of religion's impact on building innovation systems. Therefore, in order to shed light on this relationship, I set forward two hypotheses. The first one is that there is a negative relationship between religiosity and attitudes towards innovation. The second one is that there is a difference in attitudes towards innovation across religions.

To test these hypotheses, I use a time series survey from the World Values Survey (WVS), conducted from 1981 to 2020 in over 100 countries on numerous measures including religious attitudes and measures of attitudes towards innovation. I conduct regressions and interpret the results to explore the relationships between religiosity and innovation attitudes and innovation and religions.

## Literature Review

Previous studies conclude that almost all advanced industrial societies are evolving towards more secular orientations, so while religion has generally been on the decline in developed countries, globally, however, religious adherence has increased to 84% of the world's population (Finke, 2013). The lack of religious decline as the world is getting more educated and better off does not have a clear explanation. However, Marx initially proposed that religious adherence is a consequence of alienated and unhappy individuals who are looking for meaning beyond what their current setting provides. In light of economic disasters and the overarching issues of environmental issues such as climate change, some ascribe the rise of religious adherence to the increase in economic pessimism (Marx, 1843), and others point to the higher birth rate of religious countries (Mayer, 2005). It is, therefore, crucial to understand what are the

consequences of an increase in religiosity across the world- in particular as it relates to innovation and economic growth.

## How religion can affect attitudes toward innovation.

There is no doubt that religion is an important element of individuals' lives across the world. In fact, Guiso et al. (2003) observed that religiosity influences economic perspectives. They looked at the connection among religion and six factors: individuals' perspectives toward collaboration, women, government, laws, the market economy and individuals' decency and frugality. By and large, religiosity is related decidedly with perspectives that favor free markets. Christians are all the more emphatically connected with perspectives that encourage economic growth, while Islam is negatively correlated (Guiso, 2003).

Creativity is an important element of technological development (Heye, 2006). For ideas are only getting harder and harder to find (Bloom, 2020) and thus the creative pursuit of reimagining how current things are done is critical for innovation. A study by Liu et al. (2018) have found that there is a negative association with religion and creativity. Liu et al (2018) also observed that there is a difference in creativity across different religions, namely protestant and catholic adherents were positively associated with creativity while islam adherents were negatively associated with creativity (Liu, 2018).

Risk taking is an important element of innovation (Garcia, 2015). Since innovation is based on the exploration and implementation of new and valuable ideas, risk-taking propensity can arguably be considered a driver of innovation as it encourages the emergence of new and uncertain ideas (Schilling, 2010). While there is a strong relationship between risk taking propensity and taking up innovation, there is less certainty on religion's impact on risk in the

innovation. However, there are studies that suggest that belief in god can encourage people to take greater risks (Kupor, 2015). The researchers of this study concluded that “when it comes to risk with no moral connotations, reminders of God would actually cause people to feel safe and protected--and therefore cause people to be more willing to take risks" (Kupor, 2015). This perception of divine protection from God could result in religious individuals being more risk-loving in certain areas of life. However, there is no conclusive research on the impact of religion on risk taking capacities in the innovation space.

As the world continues to become more religious, or at the very least, continues to become occupied by more religious people, we need to understand the role that increased adherence has on attitudes towards innovation.

Bénabou et al. (2013) uncovered a negative relationship between religiosity and innovation attitudes. My paper adds to the existing research on the economics of religion and innovation by examining the link between religious attitudes and perspectives on innovation. Additionally, it delves deeper by exploring the connections between adherence to various religions, the corresponding levels of religiosity within these faiths, and their relationship with attitudes towards innovation.

## Data

In order to assess the individual relationship between measures of religiosity and attitudes towards innovation, I used data from the World Values Survey (WVS), a time series data from 1981 to 2020. This data set renders over 430,000 observations.

The World Values Survey makes it possible to understand how distinct characteristics shape worldviews. The World Values Survey is a global effort by a network of social scientists to

conduct national surveys in over 100 countries since 1981. The WVS is a cross-national time series study that is conducted in waves, with each wave covering a span of five years. The WVS measures individuals' support of democracy, tolerance of foreigners, perception on gender equality, religion, and many other measures. The nature of the WVS being done over a few decades makes it possible to analyze how changes in certain measures in individuals have changed over time and its consequences in other measures.

Researchers have numerously shown that people's values are of great importance for economic development using the WVS (Tabellini, 2010).

I run a logit regression on four measures of religiosity; religious person, importance of religion, and church attendance with six measures of attitudes towards science, technology and innovation; importance of creativity and new ideas, importance of risk taking, science and technology make lives easier, science and technology makes life change too fast, we depend on science too much and not enough on faith, and science and technology makes the world a better place, alongside control variables, country, gender, age, education, income\_level, and city\_size. In addition, I add control variables for different religions to see if there are differences in attitudes towards innovation across different religions. In the WVS that I utilize, it appears that Christians are overrepresented, Muslims underrepresented, and Hindus missing completely- thus extrapolations to other religions, if done at all, should be done in light of this fact.

All religiosity variables and attitudes towards innovation variables are changed from a likert scale to binary. All religiosity variables that take on the number one are indicators of more religious, and thus all variables that take on zero are less religious. All attitudes towards

innovation variables that take on the number one are indicators of more open to technology and innovation, and thus all variables that take on zero are less open to technology and innovation.

### Measure of Religiosity and Binary Re-mapping

<b>WVS Religiosity Survey Question</b>	<b>Renamed Variable</b>	<b>Likert Scale</b>	<b>1 (Religious)</b>	<b>0 (Not Religious)</b>
I believe in god	believe_god	0 or 1 I don't believe or I do believe	1	0
How religious are you	religious_person	1-5; not religious to very religious	4-5	1-2
Religion is important in my life	religion_important	1-5; not important to very important	4-5	1-2
How often do you attend religious services	church_attendance	1-8; once in a while to always	5-8	1-3

### Measure of attitudes towards innovation and Binary Re-mapping

<b>WVS Innovation Attitude Survey Questions</b>	<b>Renamed Variable</b>	<b>Likert Scale</b>	<b>1 (Pro Innovation)</b>	<b>0 (Anti-innovation)</b>
It is important to this person: to think up new ideas and be creative.	new_ideas_important	1-10 level of agreeability	6-10	1-4
It is important to this person: adventure and taking risks.	important_take_risks	1-10 level of agreeability	6-10	1-4
Science and technology are making our lives healthier, easier, and more comfortable.	lives_easier	1-10 level of agreeability	6-10	1-4
We depend too much on science and not enough on faith.	depend_science	1-10 level of agreeability	6-10	1-4
The world is better off because of science and technology.	world_better	1-10 level of agreeability	6-10	1-4



## Religious Measures

Across the world, we see an overwhelming amount of individuals who believe in god- my data set shows that 86.14% of individuals surveyed across the world believe in god.

However, there are several different measures of religion that I use. Namely because people are religious to different extents. A person who believes in god has a varying level of religiosity from a person who considers themselves a religious person, an individual who believes religion is important to their lives and especially from an individual who attends religious services. While I'm sure there is a correlation, I wouldn't expect the same individual to answer the same on all of those measures.

The data shows different responses to the different measures of religiosity that individuals were surveyed. While 86.14% of individuals believe in god, only about 67% attend religious services. It is safe to assume that the individuals who attend church are probably more religious than the individuals who simply suggest they believe in god. I would generally expect a correlation between the different measures of religiosity. We see below [Table 1] that all the different measures of religiosity are highly correlated. All coefficients are significant at the 99% confidence interval. At the highest correlation, we see that a person who considers themselves a religious person is almost 50% more likely to say that religion is important to them than a person who does not consider themselves religious. At the lowest correlation, we see that a person who goes to church is only 28.4% more likely to say that they believe in god than a person who does not go to church. While the religious measures are highly correlated, they are not fully correlated. There are people who believe in god but still don't attend church. Therefore, moving forward I will be using all of the measures of religiosity as an independent variable in my regression. Likewise, in interpreting final regressions, I will give more credence to different measures of religiosity. I will be moving forward with the assumption that individuals' levels of

religiosity increases as we move from variables believing in god, religious importance, religious person, and finally whether the individual attends church or not. Meaning that a person who goes to church is more religious than a person who is a religious person who is more religious than a person for whom religion is important who is also more religious than a person who believes in god. Due to the fact that all religious measures are highly correlated, moving forward, I will not run regressions with all the religious measures in the same regression as a lot of explanatory power will be taken away. I will be running regressions on one religious variable at time.

**[Table 1]**

**Correlation of all religious measures used in model**

	believe_god	believe_god	believe_god	religion_important	religion_important	religious_person
<b>religion_important</b>	<b>0.382</b>					
	[p<0.001]					
<b>religious_person</b>		<b>0.41</b>		<b>0.496</b>		
		[p<0.001]		[p<0.001]		
<b>church_attendance</b>			<b>0.284</b>		<b>0.392</b>	<b>0.389</b>
			[p<0.001]		[p<0.001]	[p<0.001]
<b>_cons</b>	<b>0.586</b>	<b>0.571</b>	<b>0.669</b>	<b>0.37</b>	<b>0.451</b>	<b>0.437</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>N</b>	<b>288,352</b>	<b>292,213</b>	<b>294,476</b>	<b>378,584</b>	<b>387,666</b>	<b>383,615</b>

## Attitudes towards Innovation

When looking at the six measures of attitudes of interest, I observe that individuals tend to hold attitudes that are open towards measures of innovation [Table 2]. In particular, 86.6% of individuals believe that new ideas are important to them, 88.25% believe that science and technology make our lives easier, 84.31% believe the world is better off because of science and technology, 87.57% don't believe science and technology is changing their lives too fast. On the other hand, only 59.45% believe that risk taking is important to them and 39.30% believe that we depend too much on science and not enough on faith. The measures for which a vast majority of individuals agree on might result in findings that render religious differences less important. The later measures with more variation might be more telling and can provide us with better insights on whether religiosity is driving the variations.

## Empirical Analysis

### Do levels of religiosity affect attitudes towards innovation?

Let's turn to the relationship between the four different measures of religiosity and the five attitudes towards education at the individual level.

## Descriptive tables [Table 2]

Variable	Observations	Mean	Std. Dev.	Min	Max
<b>Religious Measures</b>					
believe_god		0.861	0.345	0	1
religion_important		0.713	0.453	0	1
religious_person		0.694	0.461	0	1
church_attendance		0.67	0.47	0	1
<b>Attitudes towards Innovation</b>					
depend_science		0.393	0.488	0	1
important_take_risks		0.595	0.491	0	1
lives_easier		0.883	0.322	0	1
new_ideas_important		0.866	0.341	0	1
world_better		0.843	0.364	0	1
<b>religion</b>					
christian		0.672	0.469	0	1
muslim		0.28	0.449	0	1
buddhist		0.038	0.192	0	1
jew		0.01	0.098	0	1
<b>Control Variables</b>					
year				1981	2020
country				1	121
income level.					
Low		0.331	0.471	0	1
Middle		0.551	0.497	0	1
High		0.118	0.323	0	1
Female		0.519	0.5	0	1
Education		4.713	2.228	1	8

## 1) Believe god and attitudes towards innovation

[Table 3]

	(1) New ideas and creativity are important	(2) Taking risks are important	(3) Science and technology make lives easier	(4) We depend too much science and not enough on faith	(5) Science and technology make lives better
<b>Believe_god</b>	<b>0.00145</b>	<b>-0.0312</b>	<b>-0.009</b>	<b>-0.203</b>	<b>-0.019</b>
	[0.543]	[p<0.001]	[0.86]	[p<0.001]	[p<0.001]
<b>female</b>	<b>-0.0147</b>	<b>-0.0871</b>	<b>-0.0137</b>	<b>-0.00624</b>	<b>-0.00794</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[0.38]	[p<0.01]
<b>age</b>	<b>-0.00139</b>	<b>-0.00522</b>	<b>-0.0000596</b>	<b>-0.000682</b>	<b>-0.000274</b>
	[p<0.001]	[p<0.001]	[0.68]	[p<0.001]	[p<0.01]
<b>education</b>	<b>0.0133</b>	<b>0.00617</b>	<b>0.00422</b>	<b>0.00106</b>	<b>0.00604</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[0.97]	[p<0.001]
<b>income_level</b>	<b>0.0298</b>	<b>0.044</b>	<b>0.0239</b>	<b>-0.0172</b>	<b>0.0393</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>city_size</b>	<b>0.00085</b>	<b>0.000879</b>	<b>0.00291</b>	<b>-0.00079</b>	<b>-0.00169</b>
	[0.23]	[0.94]	[4.52]	[0.77]	[p<0.05]
<b>_cons</b>	<b>0.799</b>	<b>0.794</b>	<b>0.837</b>	<b>0.629</b>	<b>0.806</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>N</b>	<b>57542</b>	<b>57314</b>	<b>52406</b>	<b>47729</b>	<b>51467</b>

## 2) Religious person and attitudes towards innovation

[Table 4]

	(1) New ideas and creativity are important	(2) Taking risks are important	(3) Science and technology make lives easier	(4) We depend too much science and not enough on faith	(5) Science and technology make lives better
<b>religious_person</b>	<b>0.00253</b>	<b>-0.0349</b>	<b>-0.00386</b>	<b>-0.09</b>	<b>-0.00413</b>
	[0.52]	[p<0.001]	[0.76]	[p<0.001]	[0.43]
<b>female</b>	<b>-0.0177</b>	<b>-0.091</b>	<b>-0.0147</b>	<b>-0.0123</b>	<b>-0.00972</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>age</b>	<b>-0.00129</b>	<b>-0.00543</b>	<b>-0.000033</b>	<b>-0.000557</b>	<b>-0.000202</b>
	[p<0.001]	[p<0.001]	[0.16]	[p<0.001]	[0.05]
<b>education</b>	<b>0.0126</b>	<b>0.00722</b>	<b>0.00488</b>	<b>0.0035</b>	<b>0.00813</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>income_level</b>	<b>0.0275</b>	<b>0.042</b>	<b>0.022</b>	<b>-0.00281</b>	<b>0.04</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[0.49]	[p<0.001]
<b>city_size</b>	<b>0.000931</b>	<b>0.00198</b>	<b>0.00135</b>	<b>0.00202</b>	<b>-0.00111</b>
	[1.9]	[p<0.01]	[p<0.01]	[p<0.05]	[0.93]
<b>_cons</b>	<b>0.818</b>	<b>0.775</b>	<b>0.827</b>	<b>0.459</b>	<b>0.757</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>N</b>	<b>102763</b>	<b>102535</b>	<b>88664</b>	<b>81962</b>	<b>87842</b>

### 3) Religion Important and attitudes towards innovation

[Table 5]

	(1) New ideas and creativity are important	(2) Taking risks are important	(3) Science and technology make lives easier	(4) We depend too much science and not enough on faith	(5) Science and technology make lives better
<b>religion_important</b>	<b>0.00742</b>	<b>-0.0289</b>	<b>-0.00874</b>	<b>-0.127</b>	<b>-0.0175</b>
	[p<0.01]	[p<0.001]	[p<0.01]	[p<0.001]	[p<0.001]
<b>female</b>	<b>-0.0177</b>	<b>-0.0928</b>	<b>-0.014</b>	<b>-0.0103</b>	<b>-0.00908</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.01]	[p<0.001]
<b>age</b>	<b>-0.0013</b>	<b>-0.00546</b>	<b>-0.0000245</b>	<b>-0.000523</b>	<b>-0.000173</b>
	[p<0.001]	[p<0.001]	[0.35]	[p<0.001]	[0.20]
<b>education</b>	<b>0.0125</b>	<b>0.00721</b>	<b>0.00488</b>	<b>0.00268</b>	<b>0.00787</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.01]	[p<0.001]
<b>income_level</b>	<b>0.0276</b>	<b>0.0418</b>	<b>0.0222</b>	<b>-0.00379</b>	<b>0.0398</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[1.35]	[p<0.001]
<b>city_size</b>	<b>0.00105</b>	<b>0.002</b>	<b>0.00114</b>	<b>0.00151</b>	<b>-0.00102</b>
	[p<0.05]	[p<0.01]	[p<0.05]	-1.94	[1.80]
<b>_cons</b>	<b>0.815</b>	<b>0.774</b>	<b>0.83</b>	<b>0.493</b>	<b>0.766</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>N</b>	<b>104296</b>	<b>104061</b>	<b>89965</b>	<b>83183</b>	<b>89066</b>

#### 4) Church attendance and attitudes towards innovation

[Table 6]

	(1) New ideas and creativity are important	(2) Taking risks are important	(3) Science and technology make lives easier	(4) We depend too much science and not enough on faith	(5) Science and technology make lives better
<b>church_attendance</b>	<b>0.0221</b>	<b>-0.00177</b>	<b>-0.0134</b>	<b>-0.0664</b>	<b>-0.00664</b>
	[p<0.001]	[0.53]	[p<0.001]	[p<0.001]	[0.39]
<b>female</b>	<b>-0.0185</b>	<b>-0.0948</b>	<b>-0.014</b>	<b>-0.0148</b>	<b>-0.00904</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>age</b>	<b>-0.00134</b>	<b>-0.00548</b>	<b>-0.000002</b>	<b>-0.000724</b>	<b>-0.000197</b>
	[p<0.001]	[p<0.001]	[0.43]	[p<0.001]	[p<0.05]
<b>education</b>	<b>0.0128</b>	<b>0.00787</b>	<b>0.00502</b>	<b>0.00343</b>	<b>0.00806</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>income_level</b>	<b>0.0275</b>	<b>0.0409</b>	<b>0.0226</b>	<b>-0.00256</b>	<b>0.04</b>
	[p<0.001]	[p<0.001]	[p<0.001]	(-0.90)	[p<0.001]
<b>city_size</b>	<b>0.000901</b>	<b>0.00182</b>	<b>0.0012</b>	<b>0.0014</b>	<b>-0.00097</b>
	[0.23]	[p<0.01]	[p<0.05]	[0.57]	[0.19]
<b>_cons</b>	<b>0.807</b>	<b>0.758</b>	<b>0.83</b>	<b>0.452</b>	<b>0.756</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>N</b>	<b>101824</b>	<b>101593</b>	<b>88115</b>	<b>81484</b>	<b>86935</b>



## **Results: Religiosity and Attitudes Towards Innovation**

Table 3 shows estimates and standard errors for the religious measure of whether or not an individual believes in god and five attitudes towards innovation, science, and technology. Control variables are also reported and are all mostly highly significant. For three of the measures of attitudes towards innovation, belief in god looks to be negatively correlated. A person who believes in god is 3.12% less likely to believe that risk taking is important, 20% more likely to believe that we depend too much on science and not enough on faith, and 1.9% less likely to believe that science and technology makes lives better. All of these findings are statistically significant at the 99.9% confidence interval. Belief in god looks to have a small relationship between the last two measures, new ideas and creativity being important and science and technology making lives easier and are also not statistically significant.

Table 4 shows estimates and standard errors for the religious measure of whether the individual is a religious person and five attitudes towards innovation, science, and technology. Control variables are also reported and are all mostly highly significant. Two of the attitudinal measures of innovation, risk taking and too much dependence on science, are negatively correlated with a religious person ( $P < 0.01$ ). Specifically, a religious person is 3.5% less likely to believe that risk taking is important and 9% more likely to agree that we depend more on science than faith. The other three attitudinal measures are statistically insignificant.

Table 5 shows estimates and standard errors for the religious measure of whether religion is important to the individual and five attitudes towards innovation, science, and technology. Control variables are also reported and are all mostly highly significant. All measures appear to be statistically significant at either the 99% or 99.9%. Specifically, a person to whom religion is important is 2.9% less likely to agree that risk taking is important, 0.88% less likely to agree that science and technology make lives easier, 12.7% more likely to agree that we depend too much on science and not enough on faith, and 1.8% less likely to agree that science and technology makes lives easier. Those four measures are negatively correlated with a person to whom religion is important, with the exception of the importance of

new ideas and creativity. A person to whom religion is important is 0.7% more likely to agree that new ideas and creativity are important.

Table 6 shows estimates and standard errors for the religious measure of church attendance and five attitudes towards innovation, science, and technology. Control variables are also reported and are all mostly highly significant. Three measures, science and tech makes lives easier, depend too much on science, and science and technology makes lives better are negatively correlated with church attendance and are statistically significant at the 95% or 99% confidence interval. A person who attends church is 1.3% less likely to agree that science and technology makes lives easier, 6% more likely to agree that we depend too much on science and not enough on faith, and 0.6% less likely to agree that science and technology make lives better. On the other hand, a person who attends church is 2.2% more likely to agree that new ideas and creativity are important. Church attendance and risk taking is not statistically significant.

In all the regressions I estimated, having higher Income, a lower Age, higher education, and being a Male resulted in pro-innovation attitudes. In tune with most literature, women appear to be averse to risks. City size appears to have inconsistent outcomes.

In general, there looks to be a general trend that religiosity is negatively correlated to measures of attitudes towards innovation. However, there are a few religiosity measures that display positive relationships to attitudes towards innovation. In addition, for even the religiosity measures that are negatively correlated to measures of attitudes towards innovation, the degree of difference is mostly economically insignificant. Many measures were in the lower single digits. I observe differences when science is pitted against faith in the attitudinal measure “we depend too much on science and not enough on faith.”

## **Do followers of different religions have different attitudes towards innovation?**

Next, I'm interested in seeing if there is a difference between different religions and differences in attitudes towards innovation. In order to assess the relationship between different religions, specifically Christianity, Islam, Buddhism, and Judaism, and attitudes towards innovation, I used the same WVS survey and included the variables for those religions. The resulting regression is on Table 7 on the next page.

### **Results: Different religions and attitudes towards innovation**

Table 7 shows estimates and standard errors for the different religions, religious measures and five attitudes towards innovation, science, and technology. Control variables are also reported and are all mostly highly significant. Compared to Christianity, we see that a Muslim person has two attitudes that deviate and are statistically significant at the 99.9% confidence interval. Specifically, I find that a Muslim individual is 13.1% more likely than a Christian adherer to agree that science and technology make lives better and 10.41% less likely than a Christian adherer to agree with the statement that we depend too much on science and technology. Jewish person is 9.98% more likely than a Christian to agree that science and technology makes lives easier and 24.47% more likely to agree that we depend too much on science and technology and not enough on faith.

In summary, the results show that the attitudes of different religious groups towards new ideas, risk-taking, science, and technology vary. Muslims, Buddhists, and Jews differ in their attitudes compared to Christians in different aspects, with some groups showing more positive or negative attitudes in certain areas. In two measures of innovation, Muslim individuals possess attitudes that are more pro-innovation than a Christian adherer. A Jewish person looks to agree more than Christian on science and technology making lives easier but more likely to advocate for faith when having to choose between science and technology.

[Table 7] Attitudes Towards Innovation Across Different Religions

	(1) New ideas and creativity are important	(2) Taking risks are important	(3) Science and technology make lives better	(4) Science and technology make lives easier	(5) We depend too much science and not enough on faith
<b>ChurchAttendance</b>	<b>0.0284</b>	<b>0.0114</b>	<b>-0.004</b>	<b>-0.022</b>	<b>-0.025</b>
	[p<0.001]	[0.81]	[0.52]	[p<0.001]	[p<0.001]
<b>Female</b>	<b>-0.021</b>	<b>-0.094</b>	<b>0.0305</b>	<b>0.0277</b>	<b>0.0353</b>
	[p<0.001]	[p<0.001]	[0.17]	[0.16]	[0.64]
<b>Age</b>	<b>-0.001</b>	<b>-0.005</b>	<b>0.0009</b>	<b>-0.000</b>	<b>-0.001</b>
	[p<0.001]	[p<0.001]	0.243645811	0.19309022	[p<0.001]
<b>Education</b>	<b>0.0118</b>	<b>0.0072</b>	<b>0.0086</b>	<b>0.0050</b>	<b>-0.000</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[0.61]
<b>Income_Level</b>	<b>0.0276</b>	<b>0.0387</b>	<b>0.0468</b>	<b>0.0185</b>	<b>0.0080</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[0.38]
<b>City_Size</b>	<b>0.0012</b>	<b>0.0029</b>	<b>-0.000</b>	<b>0.0051</b>	<b>0.0028</b>
	[0.80]	[p<0.05]	[0.49]	[0.42]	[p<0.05]
<b>Christian</b>	-	-	-	-	-
<b>Muslim</b>	<b>-0.002</b>	<b>0.0732</b>	<b>0.0074</b>	<b>0.131</b>	<b>-0.104</b>
	[0.36]	[0.85]	[0.22]	[p<0.001]	[p<0.001]
<b>Buddhist</b>	<b>0.0206</b>	<b>0.0578</b>	<b>-0.027</b>	<b>0.0237</b>	<b>0.1327</b>
	[0.32]	[p<0.05]	[0.55]	[0.96]	[0.23]
<b>Jew</b>	<b>-0.046</b>	<b>-0.017</b>	<b>0.0453</b>	<b>0.0998</b>	<b>0.247</b>
	-0.11]	[0.10]	[0.94]	[p<0.05]	[p<0.001]
<b>_cons</b>	<b>0.820</b>	<b>0.732</b>	<b>0.709</b>	<b>0.809</b>	<b>0.428</b>
	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]	[p<0.001]
<b>N</b>	<b>31606</b>	<b>31615</b>	<b>25092</b>	<b>25349</b>	<b>23999</b>

# Discussion

Utilizing the World Values Survey, I examined the connection between religiosity and attitudes towards innovation, as well as the potential relationship between adherents of various religions and their innovation outlook. A few findings showed that measures of attitudes towards innovation were negatively correlated with religiosity and generally exhibited statistical significance.

Despite the statistical significance of these relationships, they may not hold considerable economic significance for two reasons: firstly, people from diverse religious backgrounds generally possess positive attitudes towards science, technology, and innovation in the first place; secondly, religiosity seems to have only a marginal effect on innovation attitudes (less than 5% on average). When comparing different religions and their attitudes towards innovation, Islam and Buddhism appear to be more pro-innovation than Christianity, while Judaism demonstrates varied attitudes. The most significant differences in attitudes towards innovation emerge when science, technology, and innovation are juxtaposed with faith. However, without the mention of faith, the relationship between religiosity, different religions, and attitudes towards innovation is generally economically insignificant. Given that, it is advisable that policy makers who seek to promote innovative economies or companies not juxtapose or suggest even slightly that science, technology, and innovation are diametrically opposed.

Likewise, the coevolution of religious beliefs and attitudes towards science, technology, and innovation within social and economic contexts is a crucial consideration. As with other economic and social entities, religions are subject to the forces of competition and collaboration. Adam Smith's proposition that self-interest drives clergy members and that market forces, monopolies, and government regulations apply equally to religion as they do to other sectors of the economy is relevant in this context. Despite the historical tension between religion and innovation, it is possible that religions have had to become more receptive to innovation over time, driven by market forces and changing societal demands.

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